PATENT ABSTRACTS OF JAPAN

(11)Publication number : 08-244532
(43)Date of publication of application : 24.09.1996

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(51)Int.CI. B60R 1/06

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(21)Application number : 07-320379
(22)Date of filing : 08.12.1995
(71)Applicant : ICHIKOH IND LTD
(72)Inventor : HATAKEYAMA MUTSUO
WATABE HIDEYO

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(30)Priority
Priority number : 07 1631 Priority date : 10.01.1995 Priority country : JP

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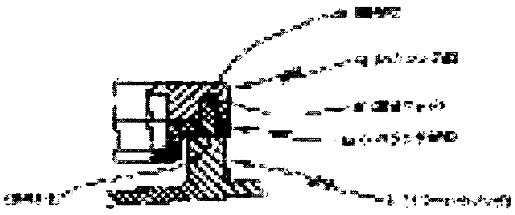
(54) COUPLING STRUCTURE OF HOUSING FOR MOUNTING EQUIPMENT ON VEHICLE

(57)Abstract:



PURPOSE: To enhance durability for fixation of a housing main body and a housing closure by inserting the coupling rod shaped member of a base member into a coupling hole while being penetrated through the through hole of the housing main body, closely fitting the aforesaid member in the hole, and welding the coupling rod shaped member to the inner circumferential surface of the coupling hole by ultrasonic deposition.

CONSTITUTION: A coupling rod 4f is integrally molded with a mirror housing 5, the coupling rod 4f is inserted into the through hole 4c of a housing main body 4a, and concurrently the aforesaid rod is fitted in the coupling hole 4e of a housing closure 4b so as to be welded to each other by ultrasonic deposition. As a result, since the housing closure 4b and the housing main body 4a can mutually be fixed to the mirror housing (base member) 5 with no mounting screw used, any screw will never be loosened. In this case, the housing closure 4b is firmly and mutually coupled with the mirror housing 5 via a coupling rod 4d in a form that the housing main body 4a is sandwiched between the housing closure 4b and the mirror housing 5, and reliability and durability can thereby be enhanced.

LEGAL STATUS

[Date of request for examination]	22.09.1999
[Date of sending the examiner's decision of rejection]	
[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]	abandonment

[Date of final disposal for application]	03.06.2002
[Patent number]	
[Date of registration]	
[Number of appeal against examiner's decision of rejection]	
[Date of requesting appeal against examiner's decision of rejection]	
[Date of extinction of right]	

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[Claim(s)]

[Claim 1] In that to which it is the device carried in vehicles, and it changes from the housing main part made of synthetic resin, and the housing lid made of synthetic resin, and the above-mentioned housing main part is being fixed to the base member made of synthetic resin While the rod-like member for combination is fabricated by the aforementioned base member in one The joint hole is established in the aforementioned housing lid. the rod-like member for the above-mentioned combination Joint structure of housing for vehicles loading devices characterized by penetrating the bore formed in the housing main part, being inserted in the aforementioned joint hole, fitting in densely and carrying out ultrasonic welding of the rod-like member for this combination to the inner skin of a joint hole.

[Claim 2] In that to which it is the device carried in vehicles, and it changes from the housing main part made of synthetic resin, and the housing lid made of synthetic resin, and the above-mentioned housing main part is being fixed to the base member made of synthetic resin While the rod-like member for combination is fabricated by the aforementioned housing lid in one The joint hole is established in the aforementioned base member. the rod-like member for the above-mentioned combination Joint structure of housing for vehicles loading devices characterized by penetrating the bore formed in the housing main part, being inserted in the aforementioned joint hole, fitting in densely and carrying out ultrasonic welding of the rod-like member for this combination to the inner skin of a joint hole.

[Claim 3] In that to which it is the device carried in vehicles, and it changes from the housing main part made of synthetic resin, and the housing lid made of synthetic resin, and the above-mentioned housing main part is being fixed to the base member made of synthetic resin While the rod-like member for combination is formed in the aforementioned housing lid in one While a rod-like member for combination which the joint hole which fits into the above-mentioned rod-like member for combination is established in the aforementioned housing main part, and is different from the above on the above-mentioned housing main part is fabricated in one The joint hole which fits into the rod-like member for combination really fabricated by the housing main part is established in the aforementioned base member. Joint structure of housing for vehicles loading devices characterized by fitting into the joint hole where the two aforementioned kinds of rod-like members for combination correspond, respectively, and carrying out ultrasonic welding of the rod-like member for this combination to the inner skin of a joint hole.

[Claim 4] In that to which it is the device carried in vehicles, and it changes from the housing main part made of synthetic resin, and the housing lid made of synthetic resin, and the above-mentioned housing main part is being fixed to the base member made of synthetic resin While the rod-like member for the 1st combination is formed in the aforementioned housing main part in one While a rod-like member for the 2nd combination which the joint hole which fits into the above-mentioned rod-like member for the 1st combination is established in the aforementioned housing lid, and is different from the above on the above-mentioned housing main part is fabricated in one The joint hole which fits into the rod-like member for the 2nd combination really fabricated by the housing main part is established in the aforementioned base member. Joint structure of housing for vehicles loading devices characterized by fitting into the joint hole where the two aforementioned kinds of rod-like members for combination correspond, respectively, and carrying out ultrasonic welding of the rod-like member for this combination to the inner skin of a joint hole.

[Claim 5] In that to which it is the device carried in vehicles, and it changes from the housing main part made of synthetic resin, and the housing lid made of synthetic resin, and the above-mentioned housing main part is being fixed to the base member made of synthetic resin While the rod-like member for combination is formed in the aforementioned housing main part in one While a rod-like member for combination which the joint hole which fits into the above-mentioned rod-like member for combination is established in the aforementioned housing lid, and is different from the above in the above-mentioned base member is fabricated in one The joint hole which fits into the rod-like member for combination really fabricated by the base member is established in the aforementioned housing main part. Joint structure of housing for vehicles loading devices characterized by fitting into the joint hole where the two aforementioned kinds of rod-like members for combination correspond, respectively, and carrying out ultrasonic welding of the rod-like member for this combination to the inner skin of a joint hole.

[Claim 6] In that to which it is the device carried in vehicles, and it changes from the housing main part made of synthetic resin, and the housing lid made of synthetic resin, and the above-mentioned housing main part is being fixed to the base member made of synthetic resin While the rod-like member for combination is formed in the aforementioned housing lid in one While a rod-like member for combination which the 1st joint hole which fits into the above-mentioned rod-like member for combination is established in the aforementioned housing lid, and is different from the above in the above-mentioned base member is fabricated in one The 2nd joint hole which fits into the rod-like member for combination really fabricated by the base member is established in the aforementioned housing main part. Joint structure of housing for vehicles loading devices characterized by fitting into the joint hole where the two aforementioned kinds of rod-like members for combination correspond, respectively, and carrying out ultrasonic welding of the rod-like member for this combination to the inner skin of a joint hole.

[Claim 7] The housing lid made of the aforementioned synthetic resin and the base member made of the aforementioned synthetic resin are the joint structure of housing for vehicles loading devices according to claim 1 or 2 characterized by the bird clapper from the quality of the material with compatibility.

[Claim 8] The housing main part made of the aforementioned synthetic resin, the housing lid made of the aforementioned synthetic resin, and the base member made of the aforementioned synthetic resin are the joint structure of housing for vehicles loading devices according to claim 3, 4, 5, or 6 characterized by the bird clapper from the quality of the material with compatibility.

[Claim 9] The device carried in the aforementioned vehicles is the drive unit of the electromotive remote control mirror by which the mirror unit was supported possible [tilting]. It is the drive unit to which the motor is installed into housing, an attitude lever carries out advance go-astern by the drive of this motor, and the aforementioned mirror unit is made to tilt. The housing main part made of the aforementioned synthetic resin, and the housing lid made of the aforementioned synthetic resin It is housing of the aforementioned drive unit. the base member made of the aforementioned synthetic resin The claim 1 characterized by being mirror housing of the electromotive remote control mirror which makes the hollow configuration in which opening was prepared, 2, 3, 4, 5, 6, 7, or joint structure of housing for vehicles loading devices given in 8.

[Claim 10] In that to which it is the device carried in vehicles, and is equipped with housing and the above-mentioned housing is being fixed to the base member made of synthetic resin The attachment section is prepared in the aforementioned housing and the bore is prepared in this attachment section. The stepped pin which becomes the aforementioned base member from voluminousness and the small section through the installation side of the shape of an intermediate stage is formed in one. The small section of the aforementioned stepped pin is inserted in in the inside of the bore of the attachment section of the aforementioned housing. And joint structure of housing for vehicles loading devices which the point of this small section is welded by ultrasonic welding, and is characterized by carrying out fastening fixation of the attachment section of the aforementioned housing between the welding of this stepped pin, and the aforementioned installation side.

[Claim 11] Joint structure of housing for vehicles loading devices according to claim 10 characterized by making the shape of a cylindrical shape with the stage characterized by providing the following. Nothing and the aforementioned stepped pin are the aforementioned voluminousness whose outer diameter of the aforementioned installation side two or more circular configurations are prepared for the board configuration in which the aforementioned attachment section was prepared in the aforementioned housing at one in nothing and the aforementioned bore by the aforementioned base member, and is size from the bore of the aforementioned bore. The aforementioned small section whose length an outer diameter is smallness from the bore of the aforementioned bore, and is the sum of the board thickness of the aforementioned attachment section, and welding cost.

[Claim 12] Nothing and the aforementioned bore a circular configuration for the board configuration in which the aforementioned attachment section characterized by providing the following was prepared in the aforementioned housing at one nothing and the aforementioned stepped pin two or more are prepared in the aforementioned base member -- having -- **** -- an outer diameter -- the aforementioned base -- the radiation direction from the shaft which is equal to the thickness of the portion near the part in which the aforementioned stepped pin was formed among members, or makes the shape of a small cylindrical shape, and this shaft -- and two or more ribs prepared in one at equal intervals The aforementioned voluminousness whose dimension of the aforementioned rib [in / the aforementioned installation side / the aforementioned installation side is established on the way, and thickness is equal to the outer diameter of the aforementioned shaft, or consists of two or more small ribs, and] is size from the bore of the aforementioned bore. The aforementioned small section whose length of the aforementioned shaft and the aforementioned rib the dimension of the aforementioned rib is smallness from the bore of the aforementioned bore, and is the sum of the board thickness of the aforementioned attachment section, and welding cost.

[Claim 13] Joint structure of housing for vehicles loading devices according to claim 10 characterized by being equal to the thickness of the portion near [which is characterized by providing the following] the part, or making the shape of a small cylindrical shape with the stage. Nothing and the aforementioned stepped pin are the aforementioned voluminousness whose outer diameter of the aforementioned installation side two or more circular configurations are prepared for the board configuration in which the aforementioned attachment section was prepared in the aforementioned housing at one in nothing and the aforementioned bore by the aforementioned base member, and is size from the bore of the aforementioned bore. The aforementioned small section whose length an outer diameter is smallness from the bore of the aforementioned bore, and is the sum of the board thickness of the aforementioned attachment section, and welding cost. from fleshing **** prepared into the aforementioned voluminousness and the aforementioned small section -- becoming -- the aforementioned voluminous thickness -- the aforementioned base -- the inside of a member -- the aforementioned stepped pin

[Claim 14] The device carried in the aforementioned vehicles is the drive unit of the electromotive remote control mirror by which the mirror unit was supported possible [tilting]. It is the drive unit to which the motor is installed into housing, an attitude lever carries out advance go-astern by the drive of this motor, and the aforementioned mirror unit is made to tilt. the aforementioned housing It is housing of the aforementioned drive unit which consists of a housing main part made of synthetic resin, and a housing lid made of synthetic resin. the base member made of the aforementioned synthetic resin Joint structure of housing for vehicles loading devices according to claim 10, 11, 12, or 13 characterized by being mirror housing of the electromotive remote control mirror which makes the hollow configuration in which opening was prepared.

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to housing of vehicles loading devices, such as a drive unit of for example, an electromotive remote control mirror, and a drive unit of an electromotive optical-axis adjustment lamp, and it relates to the structure for this housing main part combining the above-mentioned housing lid, a housing main part, and a base member mutually in what is fixed to a base member while a housing lid and a housing main part are combined especially. Moreover, in that to which housing is fixed to the base member made of synthetic resin, it is related with the structure for combining the above-mentioned housing and a base member mutually. In this invention, a base member is a member which can attach housing and supports this housing, and does not necessarily mean a quiescence member.

[0002]

[Description of the Prior Art] Generally in various kinds of devices carried in vehicles, attaching in a base member housing which consists of a housing main part and a housing lid, and fixing mutually is performed. (For example, attachment structure of JP,6-8091,U and a power unit) . Drawing 19 is the cross section which was shown as one example of the vehicles loading device by which this housing was fixed to the base member and which fractured and drew a part of electromotive remote control type door mirror equipped with the drive unit concerning the conventional technology while a housing lid and a housing main part are combined. In drawing 19 , the mirror electrode holder 2 (a mirror unit is constituted by this mirror main part 1 and the mirror electrode holder 2) which fixed the mirror main part 1 is supported possible [tilting] to the drive unit 4 by the sphere joint 3. Housing of the above-mentioned drive unit 4 consists of housing main part 4a and housing lid 4b, and is attached in the mirror housing 5. In this conventional example, housing of the drive unit 4 is attached to the mirror housing 5. therefore, the partner to whom the mirror housing 5 fixes the drive unit 4 -- a member -- it is -- this case -- the base -- it is a member (since a name called mirror housing is confusing, it will surely call with mirror housing and full name, and will not only be called housing.) therefore, the time of only calling it housing in this invention -- the base -- it is not a member but the member which consists of a housing main part and a housing lid Housing main part 4a and housing lid 4b piled up, and it has ******(ed) and fixed to the attachment boss of the mirror housing 5 by attachment screw 4j. thereby -- the base -- the mirror housing 5 and housing main part 4a which are a member, and housing lid 4b are mutually fixed in one Although it has not appeared in drawing, the motor is installed in the drive unit 4, the attitude lever 6 goes astern a front to the upper and lower sides of drawing, and the mirror electrode holder 2 is made to tilt in connection with this by the drive of this motor.

[0003]

[Problem(s) to be Solved by the Invention] since attachment screw 4j succeeds in mutual fixation of housing main part 4a in the conventional example shown in drawing 19 shown above, and housing lid 4b, and the fixation to the mirror (the base -- it is member) housing 5 of housing main part 4a, the problem of fixed [by the slack of a screw / poor] is generated Since especially the vehicles loading device that this invention makes the object of application receives vibration upwards on the occasion of a rolling stock run and tends to receive a temperature change, a possibility of producing the slack of a screw is large. Furthermore, even if it fully binds tight, by the setting and concordance of a screw thread, a mounting torque falls and screw slack is caused. this -- preventing -- an increase -- a bundle -- although it must carry out, attachment screw 4j in drawing 19 is easily understood from drawing, for example -- as -- an increase -- a bundle -- operation -- generally [it is very difficult and] for a user, it is impossible

[0004] In view of an above-mentioned situation, it succeeds in this invention, and aims at offering joint structure without a possibility that the fixed state of a housing main part and a housing lid and the fixed state of a housing main part and a base member may become bad with use. moreover, this invention aims at offering the joint structure which steadfast-boils housing and the base member of a vehicles loading device, and can be fixed

[0005]

[Means for Solving the Problem] The fundamental principle of this invention created in order to attain the above-mentioned purpose (screw slack prevention) fits into the hole (joint hole) which prepared the member (joint rod) of the shape of a rod which projects from one of the two's member in the partner member, without using an attachment screw. Furthermore, ultrasonic welding of both is carried out. This composition is created paying attention to housing of a vehicles loading device being made from synthetic resin generally, and being able to apply ultrasonic welding. And since it consists of the housing main part, the housing lid, and the base member and these three persons are connected mutually, the attachment section of housing which this invention tends to apply can consider various composition about arrangement with the rod-like member for the aforementioned combination, and a joint hole, and if these are divided roughly, it will become six composition which is described below.

[0006] The 1st invention according to claim 1 is a device carried in vehicles, and consists of the housing main part made of synthetic resin, and the housing lid made of synthetic resin.

And in that to which the above-mentioned housing main part is being fixed to the base member made of synthetic resin, while the rod-like member for combination is fabricated by the aforementioned base member in one It is characterized by the joint hole being established in the aforementioned housing lid, and the rod-like member for the above-mentioned combination penetrating the bore formed in the housing main part, and being inserted in the aforementioned joint hole, fitting in densely and carrying out ultrasonic welding of the rod-like member for this combination to the inner skin of a joint hole.

[0007] In that to which the 2nd invention according to claim 2 is a device carried in vehicles, and the housing main part made of synthetic resin is being fixed to the base member made of synthetic resin While the rod-like member for combination is fabricated by the aforementioned housing lid in one It is characterized by the joint hole being established in the aforementioned base member, and the rod-like member for the above-mentioned combination penetrating the bore formed in the housing main part, and being inserted in the aforementioned joint hole, fitting in densely and carrying out ultrasonic welding of the rod-like member for this combination to the inner skin of a joint hole.

[0008] The 3rd invention according to claim 3 is a device carried in vehicles, and consists of the housing main part made of synthetic resin, and the housing lid made of synthetic resin. And in that to which the above-mentioned housing main part is being fixed to the base member made of synthetic resin, while the rod-like member for combination is formed in the aforementioned housing lid in one While a rod-like member for combination which the joint hole which fits into the above-mentioned rod-like member for combination is established in the aforementioned housing main part, and is different from the above on the above-mentioned housing main part is fabricated in one The joint hole which fits into the rod-like member for combination really fabricated by the housing main part is established in the aforementioned base member. It is characterized by fitting into the joint hole where the two aforementioned kinds of rod-like members for combination correspond, respectively, and carrying out ultrasonic welding of the rod-like member for this combination to the inner skin of a joint hole.

[0009] The 4th invention according to claim 4 is a device carried in vehicles, and consists of the housing main part made of synthetic resin, and the housing lid made of synthetic resin. And in that to which the above-mentioned housing main part is being fixed to the base member made of synthetic resin, while the rod-like member for the 1st combination is formed in the aforementioned housing main part in one While a rod-like member for the 2nd combination which the joint hole which fits into the above-mentioned rod-like member for the 1st combination is established in the aforementioned housing lid, and is different from the above on the above-mentioned housing main part is fabricated in one The joint hole which fits into the rod-like member for the 2nd combination really fabricated by the housing main part is established in the aforementioned base member. It is characterized by fitting into the joint hole where the two aforementioned kinds of rod-like members for combination correspond, respectively, and carrying out ultrasonic welding of the rod-like member for this combination to the inner skin of a joint hole.

[0010] The 5th invention according to claim 5 is a device carried in vehicles, and consists of the housing main part made of synthetic resin, and the housing lid made of synthetic resin. And in that to which the above-mentioned housing main part is being fixed to the base member made of synthetic resin, while the rod-like member for combination is formed in the aforementioned housing main part in one While a rod-like member for combination which the joint hole which fits into the above-mentioned rod-like member for combination is established in the aforementioned housing lid, and is different from the above in the above-mentioned base member is fabricated in one The joint hole which fits into the rod-like member for combination really fabricated by the base member is established in the aforementioned housing main part. It is characterized by fitting into the joint hole where the two aforementioned kinds of rod-like members for combination correspond, respectively, and carrying out ultrasonic welding of the rod-like member for this combination to the inner skin of a joint hole.

[0011] The 6th invention according to claim 6 is a device carried in vehicles, and consists of the housing main part made of synthetic resin, and the housing lid made of synthetic resin. And in that to which the above-mentioned housing main part is being fixed to the base member made of synthetic resin, while the rod-like member for combination is formed in the aforementioned housing lid in one While a rod-like member for combination which the 1st joint hole which fits into the above-mentioned rod-like member for combination is established in the aforementioned housing lid, and is different from the above in the above-mentioned base member is fabricated in one The 2nd joint hole which fits into the rod-like member for combination really fabricated by the base member is established in the aforementioned housing main part. the [the 1st joint hole where the two aforementioned kinds of rod-like members for combination correspond, respectively, and] -- it is characterized by fitting into 2 joint holes and carrying out ultrasonic welding of the rod-like member for this combination to the inner skin of a joint hole

[0012] According to the above-mentioned means, since the attachment screw is not used, the trouble resulting from the slack of a screw must have been generated. And since the rod-like member made of synthetic resin (joint rod) fits into the joint hole of the member made of synthetic resin and ultrasonic welding is carried out, it is unifying without leaving a material histology-boundary and is combined firmly. And ultrasonic welding does not have a possibility of producing the environmental pollution by the solvent steam, and does not produce special difficulty in labor health administration while being combined in instant without requiring the solidification latency time, when it is suitable for mass production method and productivity compares with adhesion it is good, for example, according to adhesives.

[0013] And in the 1st invention and the 2nd invention, it is the form whose housing main part was pinched between the housing lid and the base member, and this housing lid and a base member are mutually combined firmly through a rod-like member, and reliability and endurance are high.

[0014] Moreover, since a housing main part and a base member are firmly combined through a different rod-like member from the above while a housing lid and a housing main part are firmly combined through a rod-like member, in the above 1st and the 2nd invention, reliability and endurance are high in the 3rd invention or the 6th invention, similarly.

[0015] Moreover, the 7th invention according to claim 10 is a device carried in vehicles, and is set to that to which is equipped with housing and the above-mentioned housing is being fixed to the base member made of synthetic resin. The attachment section is prepared in the aforementioned housing and the bore is prepared in this attachment section. The stepped pin which becomes the aforementioned base member from voluminousness and the small section through the installation side of the shape of an intermediate stage is formed in one. The small section of the aforementioned stepped pin is inserted in in the inside of the bore of the attachment section of the aforementioned housing, the point of the small section of a parenthesis is welded by ultrasonic welding, and it is characterized by carrying out fastening fixation of the attachment section of the aforementioned housing between the welding of this stepped pin, and the aforementioned installation side.

[0016] since housing of a vehicles loading device can be fixed to a base member like the 1st above-mentioned invention or the 6th invention without using a mounting screw, and pinching fixation of the attachment section of housing is moreover carried out between a base member, the installation side of the stepped pin of one, and a welding, housing and the base member of a vehicles loading device are steadfast-boiled, and this 7th invention is fixable

[0017]

[Embodiments of the Invention] Next, the gestalt of implementation of the 1st invention or each 4th invention is explained one by one. Drawing 1 is the side cross section which showed the gestalt of 1 operation of the electromotive remote control mirror equipped with the joint structure of housing for vehicles loading devices concerning the 2nd invention, fractured partially, and was drawn. In the above-mentioned conventional example, it is the analogous component which improved the gestalt of this operation with the application of this invention for the conventional example shown in drawing 19 shown above, and attached the same sign as the above-mentioned conventional example (drawing 19) similarly. The place improved with the application of the place where these drawing 1 differs as compared with drawing 19 (conventional example), i.e., this invention, is the A section surrounded and shown with the chain line. This section is explained below. Drawing 2 is the decomposition cross section which extracted and drew the A section surrounded with the chain line in the gestalt of operation shown in drawing 1 of upper **. Joint rod 4d of the form where could project caudad and it closed from housing lid 4b is fabricated by synthetic-resin material at one. Bore 4c in which the above-mentioned joint rod 4d may be made to insert gently is prepared in housing main part 4a. and the base -- joint hole 5b which fits into the aforementioned joint rod 4d is formed in attachment boss 5a of the mirror housing 5 which is a member This fitting state has a comparatively dense desirable thing. The thing with the larger depth size of joint hole 5b than the protrusion size which is joint rod 4d is based on the technical situation at the time of injection molding by the synthetic resin of the mirror housing 5 (generating of HIKE is prevented).

[0018] Housing main part 4a is placed on attachment boss 5a of the mirror housing 5, bore 4c is doubled with joint hole 5b, and while piling up housing lid 4b and making bore 4c penetrate joint rod 4d, this joint rod 4d is made to fit into joint hole 5b. Drawing 3 is joint operation explanatory drawing which appended the ultrasonic tool horn for ultrasonic welding to the cross-section side elevation in the state where the component shown in the decomposition cross section of drawing 2 in the gestalt of the above-mentioned implementation was combined, by the imaginary line. the part of illustration in the state where it attached like this drawing 3 -- the ultrasonic tool horn 7 -- reliance -- when supersonic oscillation is given, frictional heating is produced between a joint rod 4d peripheral face and the inner skin of joint hole 5b, local fusion is performed, and it is welded mutually

[0019] Drawing 4 shows the important section of the electromotive remote control mirror equipped with the joint structure of housing for vehicles loading devices concerning the 1st invention, and is a cross-section side elevation corresponding to drawing 3 in the 2nd invention. In the gestalt of implementation of this 1st invention, while fabricating joint rod 4f in the mirror housing 5 at one and inserting this joint rod 4f in bore 4c of housing main part 4a, it fits into joint hole 4e of housing lid 4b, and ultrasonic welding is given. Thus, since it can fix mutually without housing lid 4b, housing main part 4a, and the mirror housing (base member) 5 using an attachment screw similarly in the gestalt of operation shown in drawing 3 even if constituted, there is no possibility of producing screw slack.

[0020] In the 1st above-mentioned invention and the 2nd invention, it is the form which sandwiched housing main part 4a between housing lid 4b and the mirror housing 5, and this housing lid 4b and the mirror housing 5 are mutually combined firmly through joint rod 4d, and reliability and endurance are high. In addition, in this 1st invention and the 2nd invention, housing lid 4b and the mirror housing 5 consist of the quality of the material with compatibility.

[0021] Drawing 5 shows the important section of the electromotive remote control mirror equipped with the joint structure of housing for vehicles loading devices concerning the 3rd invention, and is a cross-section side elevation corresponding to drawing 3 in the 2nd invention. this 3rd invention -- setting -- the base -- while preparing joint hole 5b in the mirror housing 5 which is a member, make joint rod 4i prepare and fit into housing main part 4a, and prepare joint rod 4g in housing lid 4b, it is made to fit into 4h of joint holes of housing main part 4a, and ultrasonic welding is given in this state Thus, even if constituted, it acts like the 1st invention and the 2nd invention which were mentioned above, and there is no possibility of producing screw slack.

[0022] Drawing 6 shows the important section of the electromotive remote control mirror equipped with the joint structure of housing for vehicles loading devices concerning the 4th invention, and is a cross-section side elevation corresponding to drawing 3 in the 2nd invention. In this 4th invention, while preparing joint hole 4k in housing lid 4b and preparing joint hole 5b in the mirror housing 5, respectively, 1st joint rod 4m which fits into I . aforementioned joint hole 4k, and 2nd joint rod 4n which fits into RO . joint hole 5b are fabricated to one, and ultrasonic welding is given to housing main part 4a in the state where it was made to fit in like this drawing 6 . Thus, even if constituted, in the above 1st or the 3rd invention, it can act similarly, and the trouble accompanying screw slack can prevent beforehand and completely.

[0023] In addition, although omitted in the drawing, while preparing a joint rod in the 3rd above-mentioned invention and reverse in the 5th invention at one at mirror housing, you establish a joint hole in a housing main part, and make it fit in, and establish a joint hole in a housing lid, prepare the joint rod of a housing main part in one, it is made to fit in, and ultrasonic welding is given in this state. Thus, even if constituted, it acts like the 1st invention mentioned above or the 4th invention, and there is no possibility of producing screw slack.

[0024] Moreover, although similarly omitted in the drawing While preparing a joint rod in mirror housing and preparing a joint rod in one, respectively, in the 6th invention, to the 4th above-mentioned invention and above-mentioned reverse at a housing lid on a housing main part Fabricate the 2nd joint hole into which the joint rod of the 1st joint hole into which the joint rod of the aforementioned housing lid fits, and the aforementioned mirror housing fits, each joint rod is made to fit into each joint hole, respectively, and ultrasonic welding is given in this state where it was made to fit in. Thus, even if constituted, in the above 1st or the 5th invention, it can act similarly, and the trouble accompanying screw slack can prevent beforehand and completely.

[0025] In the 3rd above-mentioned invention or the 6th invention, since housing main part 4a and the mirror housing 5 are firmly combined through different joint rods 4i and 4n from the above while housing lid 4b and housing main part 4a are firmly combined through the joint rods 4g and 4m, in the 1st above-mentioned invention and the 2nd invention, reliability and endurance are high similarly. In addition, in this 3rd invention or the 6th invention, housing main part 4a, housing lid 4b, and the mirror housing 5 consist of the quality of the material with compatibility.

[0026] Drawing 7 or drawing 9 shows the gestalt of operation of the 1st of the joint structure of housing for vehicles loading devices of the 7th invention. Drawing 1 or drawing 6 and drawing 19 , and a same sign show the same thing among drawing. In the gestalt of this operation, the attachment section 40 of a board configuration is formed in housing main part 4a of housing for vehicles loading devices, and housing lid 4b, and the circular bore 41 is formed in this attachment section 40.

[0027] On the other hand, the stepped pin 50 which makes two or more shape of a cylindrical shape with the stage in the mirror housing 5 is formed in one. this stepped pin 50 -- the -- on the way -- it prepares in the direction in which it is alike, it sets and the installation side 51 intersects perpendicularly mostly to the protrusion direction of a stepped pin 50 -- having -- **** -- the installation side 51 of this shape of an intermediate stage -- minding -- voluminousness (portion with a large appearance) -- it consists of 52 and the small section (portion with a small appearance) 53

[0028] The aforementioned installation side 51 is seen from mirror unit 1 and 2 side, and nothing, this installation side 51, and the outer diameter D2 of voluminousness 52 are size from the bore D1 of the aforementioned bore 41 about a round shape. Moreover, the outer diameter D3 of the small section 53 is smallness from the bore D1 of the aforementioned bore 41, and the length T2 of the small section 53 of a parenthesis is equal to the sum of the board thickness T1 of the aforementioned attachment section 40, and welding cost. In drawing, 70 is the crevice of the semi-sphere configuration prepared in the undersurface of the ultrasonic tool horn 7 for ultrasonic welding. The bore D8 of this crevice 70 is size from the bore D1 of the aforementioned bore 41.

[0029] In this way, while fitting the predetermined bore 41 of the attachment section 40 into the small section 53 of a stepped pin 50, the periphery of the bore 41 of this attachment section 40 is laid in the installation side 51 of a stepped pin 50. This installation side 51 serves as positioning of the mounting height of housing for vehicles loading devices (main part 4a and lid 4b). In a state [having made the small section 53 and the bore 41 fit in freely], the undersurface crevice 70 of the ultrasonic tool horn 7 is put to the point of the small section 53 of a stepped pin 50, and ultrasonic welding of the point of this small section 53 is carried out in it. Then, the welding 54 of a semi-sphere configuration is formed in the point of this small section 53. Since the outer diameter of this welding 54 is almost equal to the bore D8 of the crevice 70 of the above-mentioned ultrasonic tool horn 7, it serves as size from the bore D1 of a bore 41. Consequently, in between the welding 54 of the small section 53 of a stepped pin 50, and the installation sides 51, fastening fixation of the attachment section 40 of housing for vehicles loading devices (main part 4a and lid 4b) will be carried out in a sticking-by-pressure state.

[0030] Thus, the joint structure of this invention in the gestalt of this operation Like the 1st above-mentioned invention or the 6th invention, housing (main part 4a and lid 4b) of a vehicles loading device can be fixed to the mirror housing 5 without using a mounting screw.

and since pinching fixation of the attachment section 40 of housing is carried out in the state of sticking by pressure between the mirror housing 5, the installation side 51 of the stepped pin 50 of one, and a welding 54, housing (main part 4a and lid 4b) and the mirror base 5 of a vehicles loading device are steadfast-boiled, and it can fix

[0031] Especially, in the gestalt of this operation, it is effective in the ability to view the welding state of the stepped pin 5 by the ultrasonic tool horn 7, i.e., the fixed situation of the attachment section 40 and a stepped pin 50.

[0032] Drawing 10 (A), (B), (C), and (D) show the modification of an ultrasonic tool horn. As for the crevice 71 of the inferior surface of tongue of the ultrasonic tool horn 7 of this example, the shape of an anchor ring and a cross section make the annular configuration of a semi-sphere form. The diameter D9 of the periphery of this crevice 71 is size from the bore D1 of a bore 41. In the shape of a half-anchor ring, since the diameter of the periphery of the welding 55 of nothing and the shape of this half-anchor ring is almost equal to the diameter D9 of the periphery of the crevice 71 of the above-mentioned ultrasonic tool horn 7, the welding 55 of the stepped pin 50 welded by this ultrasonic tool horn 7 serves as size from the bore D1 of a bore 41.

[0033] Drawing 11 or drawing 14 shows the gestalt of operation of the 2nd of the joint structure of housing for vehicles loading devices of the 7th invention. Drawing 1 or drawing 10 and drawing 19 , and a same sign show the same thing among drawing. In the gestalt of this operation, two or more stepped pins 500 are formed in the mirror housing 5 at one. the radiation direction from the shaft 501 which this stepped pin 500 has an outer diameter D4 equal to the thickness (basic thickness) T3 of the portion near the part in which the stepped pin 500 was formed among the mirror housing 5, or makes the shape of a small cylindrical shape, and this shaft 501 -- and it consists of plurality 502 prepared in one at equal intervals, for example, the rib of four sheets or [that the thickness T4 of this rib 502 is equal to the outer diameter D4 of a shaft 501] -- or it is small The installation side 510 is established in the middle of the rib 502 above-mentioned [this stepped pin 500]. the voluminousness whose dimension D5 of the rib 502 in this installation side 510 is size from the bore D1 of the bore 41 of the attachment section 40 of housing for vehicles loading devices (main part 4a and lid 4b) -- with 520 The dimension D6 of a rib 502 Housing for vehicles loading devices It consists of the small section 530 whose length T5 of a shaft 501 and a rib 502 it is smallness and is the sum of the board thickness T1 of the attachment section 40 of housing for vehicles loading devices (main part 4a and lid 4b), and welding cost rather than the bore D1 of the bore 41 of the attachment section 40 of (main part 4a and lid 4b).

[0034] In this way, like the gestalt of the 2nd operation of a ****, while fitting the predetermined bore 41 of the attachment section 40 into the small section 530 of a stepped pin 500 By laying the periphery of the bore 41 of this attachment section 40 in the installation side 510 of a stepped pin 500, and carrying out ultrasonic welding of the point of the small section 530 with the ultrasonic tool horn 7 In between the welding 540 of the small section 530 of a stepped pin 500, and the installation sides 510, fastening fixation of the attachment section 40 of housing for vehicles loading devices (main part 4a and lid 4b) will be carried out in a sticking-by-pressure state. Consequently, the joint structure of this invention in the gestalt of this 2nd operation can attain the same operation effect as the gestalt of the 2nd operation of a ****.

[0035] Especially, since a stepped pin 500 consists of a shaft 501 and a rib 502 in the form of this 2nd operation, as compared with a solid stepped pin, there is no possibility that a surface sink may arise on the external surface (the field in which the stepped pin 500 was formed, and field of an opposite side) of the portion which formed the stepped pin 500 among the mirror housing 5.

[0036] Drawing 15 or drawing 18 shows the gestalt of operation of the 3rd of the joint structure of housing for vehicles loading devices of the 7th invention. Drawing 1 or drawing 14 and drawing 19 , and a same sign show the same thing among drawing. The gestalt of this 3rd operation is the modification of the gestalt of the 1st operation of a ****, and circular fleshing **** 56 of a bore D7 is formed [to / near the inside of the mirror housing 5 / from the apical surface of the small section 53] into voluminousness 52 and the small section 53 of a stepped pin 50. the voluminousness of this stepped pin 50 -- or [that the thickness T6 of 52 is equal to the basic thickness (thickness of the portion near the part in which the stepped pin 50 was formed) T3 of the mirror housing 5] -- or it is small In the gestalt of this 3rd operation, the fixed work of housing for vehicles loading devices by ultrasonic welding is the same as that of the gestalt of the 1st operation of a ****, and the gestalt of the 2nd operation. Moreover, the operation effect in the gestalt of this 3rd operation is the same as the gestalt of the 1st operation of a ****, and the gestalt of the 2nd operation.

[0037] Especially, since fleshing **** 56 was formed in the gestalt of this 3rd operation, as compared with a solid stepped pin, there is no possibility that a surface sink may arise on the superficies (the field in which the stepped pin 50 was formed, and field of an opposite side) of the portion which formed the stepped pin 50 among the mirror housing 5, like the gestalt of the 2nd operation of a ****.

[0038] housing main-part 4a In addition, in the 7th above-mentioned invention, although the attachment section 40 of housing for vehicles loading devices consists of housing main part 4a and housing lid 4b, in addition to this, it is accepted or you may consist of only housing lid 4b.

[0039]

[Effect of the Invention] If this invention is applied, since an attachment screw will not be used, the trouble resulting from the slack of a screw must have been generated. And since the rod-like member made of synthetic resin (joint rod) fits into the joint hole of the member made of synthetic resin and ultrasonic welding is carried out, it is unifying without leaving a material histology-boundary and is combined firmly. And ultrasonic welding does not have a possibility of producing the environmental pollution by the solvent steam, and does not produce special difficulty in labor health administration while being combined in instant without requiring the solidification latency time, when it is suitable for mass production method and productivity compares with adhesion it is good, for example, according to adhesives.

[0040] And in the 1st invention and the 2nd invention, it is the form whose housing main part was pinched between the housing lid and the base member, and this housing lid and a base member are mutually combined firmly through a rod-like member, and reliability and endurance are high.

[0041] Moreover, in the 3rd invention or the 6th invention, since a housing main part and a base member are firmly combined through a different rod-like member from the above while a housing lid and a housing main part are firmly combined through a rod-like member, in the above 1st and the 2nd invention, the outstanding practical effect that reliability and endurance are high is similarly done so.

[0042] furthermore, since housing of a vehicles loading device can be fixed to a base member like the 1st above-mentioned invention or the 6th invention without using a mounting screw, and pinching fixation of the attachment section of housing is moreover carried out between a base member, the installation side of the stepped pin of one, and a welding, housing and the base member of a vehicles loading device are steadfast-boiled, and the 7th invention is fixable

[Brief Description of the Drawings]

[Drawing 1] It is the side cross section which showed the gestalt of 1 operation of the electromotive remote control mirror equipped with the joint structure of housing for vehicles loading devices concerning the 2nd invention, fractured partially, and was drawn.

[Drawing 2] It is the decomposition cross section which extracted and drew the A section surrounded with the chain line in the gestalt of operation shown in drawing 1 of upper **.

[Drawing 3] It is joint operation explanatory drawing which appended the ultrasonic tool horn for ultrasonic welding to the cross-section side elevation in the state where the component shown in the decomposition cross section of drawing 2 in the gestalt of the above-mentioned implementation was combined, by the imaginary line.

[Drawing 4] The important section of the electromotive remote control mirror equipped with the joint structure of housing for vehicles loading devices concerning the 1st invention is shown, and it is a cross-section side elevation corresponding to drawing 3 in the 2nd invention.

[Drawing 5] The important section of the electromotive remote control mirror equipped with the joint structure of housing for vehicles loading devices concerning the 3rd invention is shown, and it is a cross-section side elevation corresponding to drawing 3 in the 2nd invention.

[Drawing 6] The important section of the electromotive remote control mirror equipped with the joint structure of housing for vehicles loading devices concerning the 4th invention is shown, and it is a cross-section side elevation corresponding to drawing 3 in the 2nd invention.

[Drawing 7] It is the side cross section which fractured partially [the electromotive remote control mirror with which the gestalt of operation of the 1st of the joint structure of housing for vehicles loading devices of the 7th invention was indicated to be, and housing for vehicles loading devices and mirror housing were combined by the joint structure of this invention], and was drawn.

[Drawing 8] decomposition with the attachment section of housing for vehicles loading devices, the same stepped pin of mirror housing, and the same ultrasonic tool horn for ultrasonic welding -- it is a cross section a part

[Drawing 9] a part of state where ultrasonic welding of the attachment section of housing for vehicles loading devices and the stepped pin of mirror housing was similarly carried out -- it is a cross section

[Drawing 10] the modification of the ultrasonic tool horn for ultrasonic welding -- being shown -- (A) -- some ultrasonic tool horns -- a side cross section and (B) -- some ultrasonic tool horns -- a bottom plan view and a part of stepped pin with which ultrasonic welding of the (C) was carried out -- a cross section and a part of stepped pin with which ultrasonic welding of the (D) was carried out -- it is a plan

[Drawing 11] the gestalt of operation of the 2nd of the joint structure of housing for vehicles loading devices of the 7th invention -- being shown -- a part of stepped pin -- it is a side elevation

[Drawing 12] It is a XII view view in drawing 11 .

[Drawing 13] decomposition with the attachment section of housing for vehicles loading devices, the same stepped pin of mirror housing, and the same ultrasonic tool horn for ultrasonic welding -- it is a cross section a part

[Drawing 14] a part of state where ultrasonic welding of the attachment section of housing for vehicles loading devices and the stepped pin of mirror housing was similarly carried out -- it is a cross section

[Drawing 15] the gestalt of operation of the 3rd of the joint structure of housing for vehicles loading devices of the 7th invention -- being shown -- a part of stepped pin -- it is a side elevation

[Drawing 16] It is a XVI view view in drawing 15 .

[Drawing 17] decomposition with the attachment section of housing for vehicles loading devices, the same stepped pin of mirror housing, and the same ultrasonic tool horn for ultrasonic welding -- it is a cross section a part

[Drawing 18] a part of state where ultrasonic welding of the attachment section of housing for vehicles loading devices and the stepped pin of mirror housing was similarly carried out -- it is a cross section

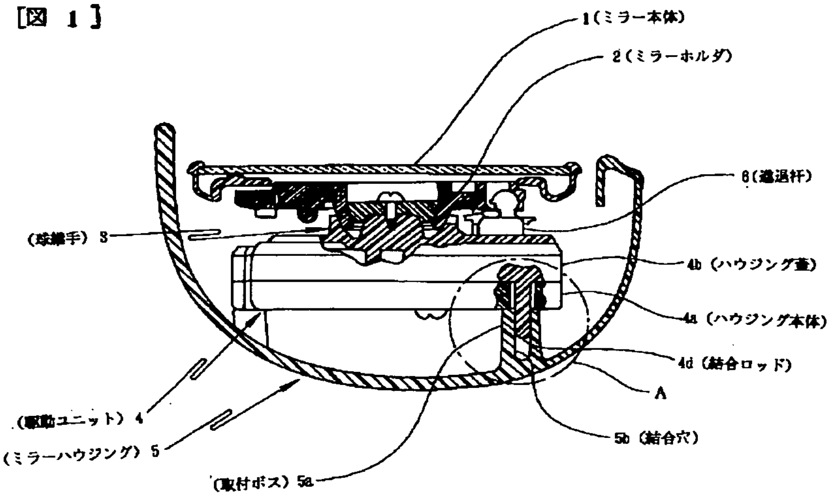
[Drawing 19] While a housing lid and a housing main part are combined, this housing is the cross section which was shown as one example of the vehicles loading device fixed to the base member and which fractured and drew a part of electromotive remote control mirror type door mirror equipped with the drive unit concerning the conventional technology.

[Description of Notations]

1 [-- A sphere joint, 4 / -- Drive unit,] -- A mirror main part, 2 -- A mirror electrode holder, 3 4a [-- A bore, 4d / -- Joint rod,] -- A housing main part, 4b -- A housing lid, 4c 4e [-- A joint hole, 4i 4m, 4n / -- Joint rod,] -- A joint hole, 4f, 4g -- A joint rod, 4h 5 [-- Joint hole,] -- Mirror housing as a base member, 5a -- An attachment boss, 5b 6 [-- The crevice of a semi-sphere configuration, 71 / -- Anchor ring-like crevice,] -- An attitude lever, 7 -- An ultrasonic tool horn, 70 50 and 500 [-- Voluminousness, 53 and 530 / -- The smallness section, 54, and 55 and 540 / -- A welding, 501 / -- A shaft, 502 / -- A rib, 56 / -- Fleshing ****.] -- A stepped pin, 51 and 510 -- An installation side, 52 and 520

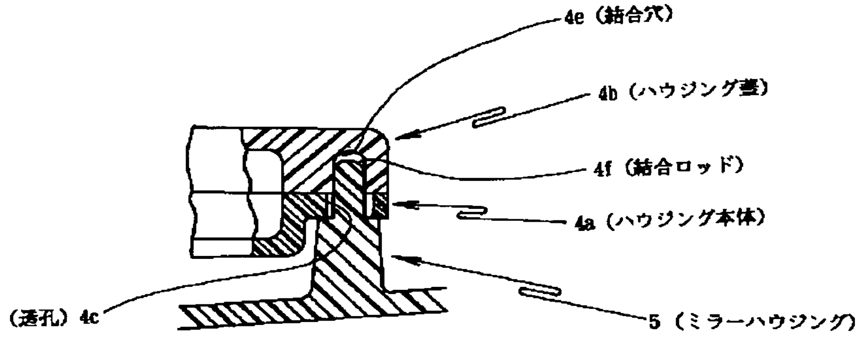
[Drawing 1]

[図 1]



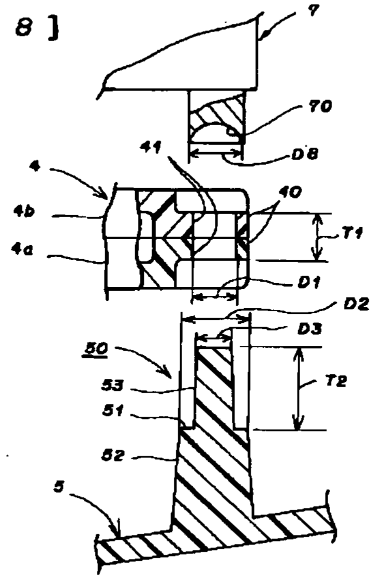
[Drawing 4]

[図 4]



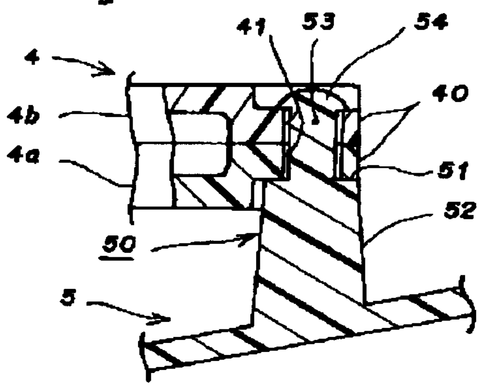
[Drawing 8]

【図 8】



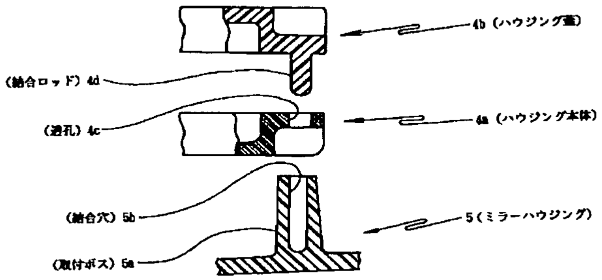
[Drawing 9]

【図 9】



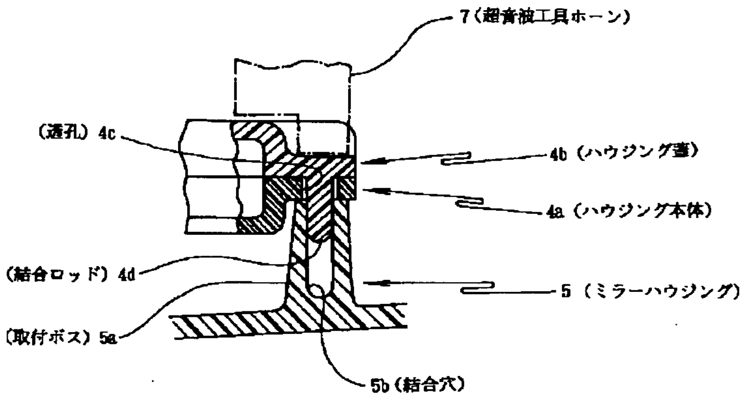
[Drawing 2]

【図 2】



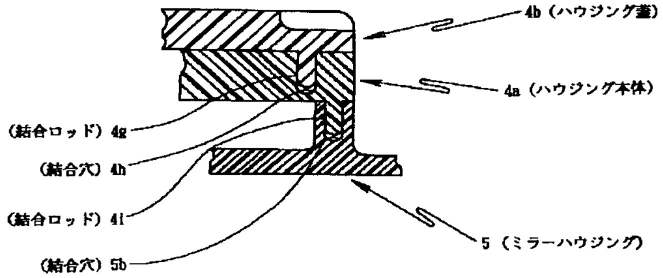
[Drawing 3]

［図 3］



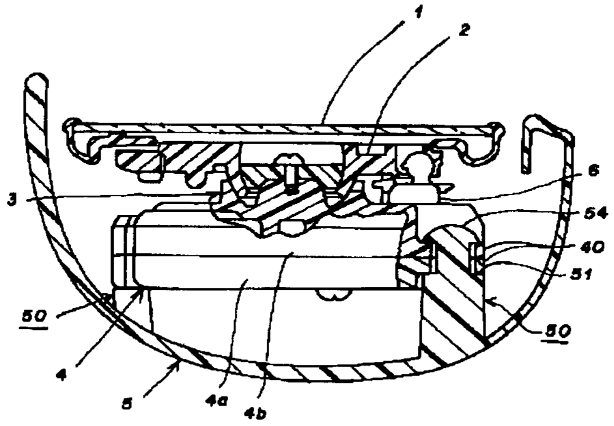
[Drawing 5]

［図 5］



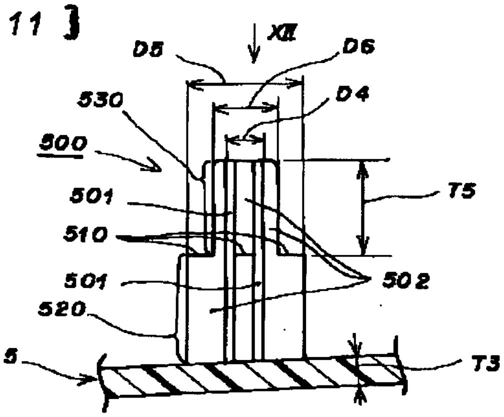
[Drawing 7]

［図 7］



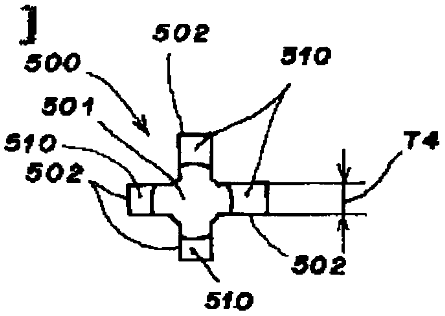
[Drawing 11]

【図 11】



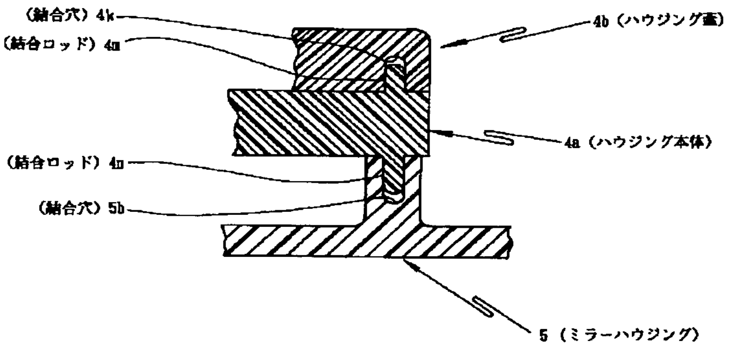
[Drawing 12]

【図 12】



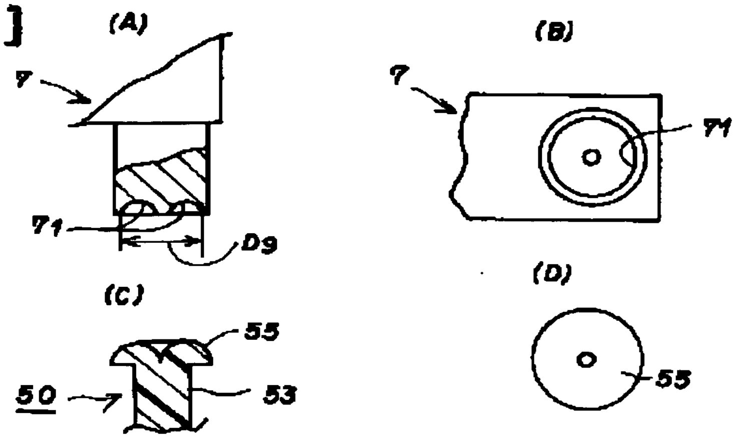
[Drawing 6]

[図 6]



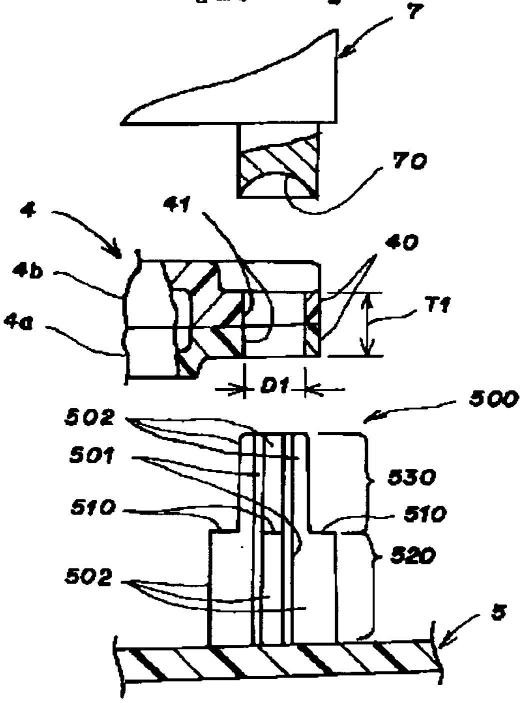
[Drawing 10]

[図 10]



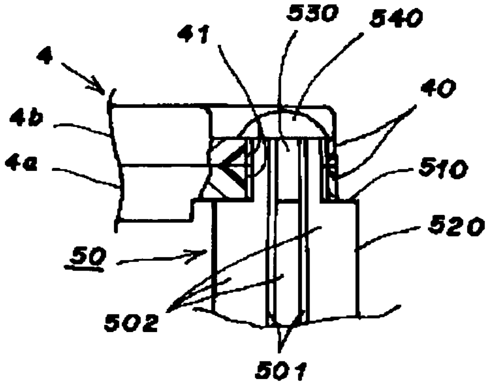
[Drawing 13]

[図 13]



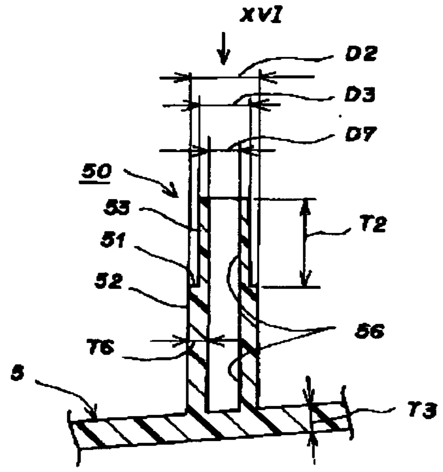
[Drawing 14]

[図 14]



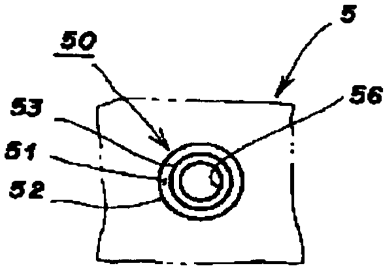
[Drawing 15]

[図 15]



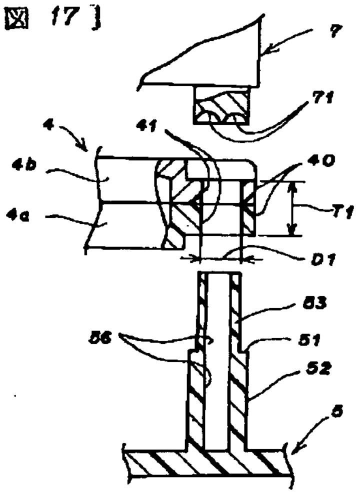
[Drawing 16]

[図 16]



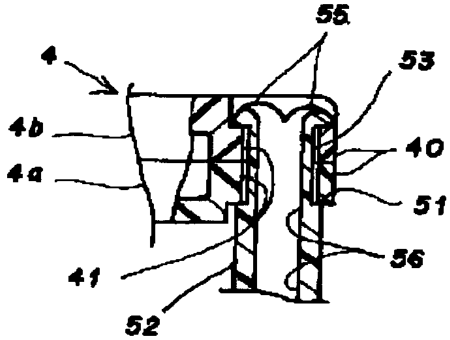
[Drawing 17]

[図 17]



[Drawing 18]

[図 18]



[Drawing 19]

[図 19]